

CLAIMS

What is claimed is:

1 1. A positioning apparatus for functional devices in a printing press
2 having impression cylinders mounted to at least one side wall, said apparatus
3 comprising:

4 at least one guide unit for guiding a functional apparatus substantially
5 vertically;

6 a drive for displacing the functional apparatus substantially vertically;

7 weight compensation means for at least partially relieving the drive of the
8 weight of the functional device as the functional device is displaced substantially
9 vertically;

10 at least one guide unit for guiding the functional apparatus substantially
11 horizontally; and

12 a drive for displacing the functional apparatus substantially horizontally.

1 2. A positioning apparatus as in claim 1 wherein said weight
2 compensation means comprises at least one of a prestressed spring, a pneumatic
3 cylinder, and a counterweight.

1 3. A positioning apparatus as in claim 1 wherein said drive comprises
2 one of a rack/pinion and a spindle/nut.

1 4. A positioning device as in claim 1 comprising two said guide units
2 for each of said vertical and horizontal displacements, said drives each comprising a

3 common shaft which extends to two mechanism arrangements, each mechanism
4 arrangement engaging a respective said guide unit.

1 5. A positioning device as in claim 1 further comprising:
2 means for moving the impression cylinders linearly with respect to the
3 plane of said side wall; and
4 means for electronically synchronizing the positioning device with the
5 linear movement of the impression cylinders.

1 6. A positioning device as in claim 1 further comprising
2 sensors on the positioning device for recording at least one of the drive
3 force and the distance to other positioning devices; and
4 means for limiting the drive force in response to signals from said sensors.

1 7. A positioning device as in claim 3 further comprising a slipping
2 clutch provided at one of said pinion and said spindle/nut for limiting the drive force.

1 8. A positioning device as in claim 1 wherein
2 said guide unit for guiding said functional unit vertically comprises a rack
3 arranged on the side wall;
4 said drive for displacing the functional apparatus substantially vertically
5 comprises an electric motor, a first shaft driven by said motor via a belt drive, a worm
6 driven by said first shaft via a bevel gear, a pinion shaft driven by said worm via a worm

7 geared fixed to said pinion shaft, and a pinion fixed to said pinion shaft and interacting
8 with said rack; and

9 said weight compensation means comprises at least one spring provided
10 on said pinion shaft, said spring being prestressed during downward displacement of
11 said functional unit and being unstressed to form potential energy during upward
12 displacement of said functional unit.